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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/668,410

09/23/2003

Scott R. Culler

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10/30/2006

3M INNOVATIVE PROPERTIES COMPANY

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EXAMINER

MARCHESCHI, MICHAEL A

ART UNIT

PAPER NUMBER

1755

DATE MAILED: 10/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/668,410

Applicant(s)

CULLER ET AL.

Examiner

Michael A. Marcheschi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-32 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 19-32 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 18 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/22/06.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/23/06 has been entered.

Claims 19-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation “generally the same distance” (second to last line of the independent claims) is indefinite because the examiner is unable to determine the meets and bound of this limitation. Is it the same distance or not? What does “generally” mean in the context of this limitation?

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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 19-24 and 26-31 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The binder, grinding aid and the abrasive particles, as defined on page 13, line 28-page 14, line 1 are critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

The above passage states that “An essential step to make the abrasive article is the preparation of the slurry (mixing step)”. The slurry made by combining...a binder precursor, a grinding aid and abrasive particles.”

With respect to the abrasive array and abrasive article, in view of the above statement, it is reasonably implied that the final abrasive feature must contain the essential components of “a binder, a grinding aid and abrasive particles”. This is apparent because these components are essential components in the mixing of the slurry and thus the final feature will inherently contain said components, thus said components are essential components of the abrasive feature (essential components not listed in the claims). The specification clearly states that a grinding aid must be present in the slurry and thus is essential.

In the following rejections, all of the references relied upon (except Gagliardi et al.) have been defined in on 1449 previously submitted.

Claims 19-20, 22-23, 25-27, 29-30 and 32 are rejected under 35 U.S.C. 102(b) as anticipated by Pieper et al. (5,152,917), as evidenced by Naujok (6,761,620) and Flood et al. (5,484,330) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Pieper et al. (5,152,917) in view of Naujok (6,761,620) and Flood et al. (5,484,330).

Pieper et al. discloses in the abstract, the figures (specifically figure 9), column 2, line 30-column 3, line 9 and column 9, line 55-column 10, line 50, an abrasive article comprising an abrasive array of protruding units, wherein a distal linear apex for each unit when projected on to a coplanar plane with its respective base, extends between non-central points on opposite first and second sides, e.g., sawtooth shapes which does not necessarily mean the side is 90 degrees or orthogonal to the base.

Naujok (6,761,620) shows in figure 3 that saw tooth shapes includes embodiments wherein the distal region is not on a plane orthogonal to the base.

Flood et al. (5,484,330) shows in figure 1 that saw tooth shapes includes embodiments wherein the distal region is not on a plane orthogonal to the base.

Pieper et al. discloses abrasive array of protruding units of saw toothed shaped composites (distal linear apex for each unit, when projected onto a plane with its respective base, extend between non-central points on opposite first and second sides). The saw tooth shapes of the primary reference does not necessarily man the side is 90 degrees or orthogonal to the base. These saw tooth shapes, as disclosed by Pieper et al., are not limited to any particular form and thus it is the examiners position that these read on the claimed saw tooth shape that includes embodiments wherein the distal region is not on a plane orthogonal to the base, as is evidenced by the secondary references.

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In the alternative, the 2 secondary references clearly disclose that saw tooth shapes includes embodiments wherein the distal region is not on a plane orthogonal to the base. One skilled in the art would have appreciated and found obvious that since this is a general structure of a saw tooth, the saw tooth shape of the primary reference could necessarily encompass features that read on the claims (distal region is not on a plane orthogonal to the base). The saw toothed shapes of the primary reference does not necessarily mean the side is 90 degrees or orthogonal to the base. These saw tooth shapes, as disclosed by Pieper et al., are not limited to any particular form and thus it is the examiners position that these make obvious the claimed saw tooth shape that includes embodiments wherein the distal region is not on a plane orthogonal to the base, as is clearly depicted by the secondary references. This is apparent because saw tooth shapes are generally not orthogonal to the base, as shown by the secondary references. Applicants show no evidence that the saw tooth shapes of the primary reference mean the side is 90 degrees or orthogonal to the base.

In view of the above, the limitations of the claims are met because the composites defined have 4 sides and a linear region offset from the first and third sides.

With respect to the two by two array, although figures 8 and 9 define arrays that are one unit deep (thus not a 2 by 2 array, at least, Fig. 9 is a side view of a segment of the abrasive article, and the article as further evident and disclosed by Fig. 8, includes more than one array of protruding units, which meets at least two-by-two array of protruding units' as defined by specification as originally filed. Further Pieper et al. discloses in column 8, lines 16-20 and column 8, lines 35-38 that the shape and periods or number of composites per unit area is varied

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depending upon the abrading applications. Fig. 18 also discloses at least two by two arrays. In view of this, the reference when taken as a whole, clearly teaches (reads on) a two-by-two array.

The following rejection is an alternative to the above rejection.

Claims 19-20, 22-27 and 29-32 are rejected under 35 U.S.C. 103(a) as obvious over Pieper et al. (5,152,917) in view of Kaisaki et al. (6,194,317) or Adefris et al. (6,319,108).

Kaisaki et al. teaches in column 5, lines 32-35 and column 24, lines 45-60 that composites having a taper rather than a 90 degree relative to the backing (or base) result in improved composites with respect to removal from the production tool. The abrasive composite are separated from one another (see column 5, lines 52-53)

Adefris et al. teaches in column 5, lines 20+ that composites having a taper rather than a 90 degree relative to the backing (or base) result in improved composites with respect to removal from the production tool and aid in controlled break down of the abrasive composite during use.. The abrasive composite are separated from one another (see figures)

The teachings and characterization of Pieper et al. are defined above. Pieper et al. discloses abrasive array of protruding units of saw toothed shaped composites (distal linear apex for each unit, when projected onto a plane with its respective base, extend between non-central points on opposite first and second sides). It is the examiners position that it would have been obvious to have a taper between the distal region and the base of the saw tooth composite of the primary reference because the secondary references teach benefits of such a taper, said benefits providing the necessary motivation for the combination, as applied. With this taper being

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obvious, the limitations of the claims are met because the composites defined have 4 sides and a linear region offset from the first and third sides.

With respect to the limitations of claims 24 and 31, the secondary references clearly teach that the composites are separated (do not abut) and thus the configuration of the composites according to the primary reference in a non abutment array would have been obvious motivated by the fact that the secondary references teach that this configuration is conventional for abrasive composites.

Claims 21, 24, 28 and 31 are rejected under 35 U.S.C. 103(a) as obvious over Pieper et al. (5,152,917) in view of Naujok (6,761,620) and Flood et al. (5,484,330), as applied to claims 19 and 26 above and further in view of Gagliardi et al. (235).

Gagliardi et al. teaches in the abstract, column 5, line 55-column 6, line 3, column 10, lines 51-54 and column 19, lines 16-24, that in abrasive articles, it is well known to have the edges of the abrasive composites non parallel to the edges of the article of which the composites are disposed. This configuration improves the cut rate and thus grinding efficiency. In addition, it is shown that the abrasive composite are separated from one another.

With respect to the limitations of claims 21 and 28, the configuration in this manner is obvious to the skilled artisan in order to improve the cut rate and thus grinding efficiency, as evidenced by Gagliardi et al. (235).

With respect to the limitations of claims 24 and 31, Gagliardi et al. (235) clearly teach that the composites are separated (do not abut) and thus the configuration of the composites according to the primary reference in a non abutment array would have been obvious motivated

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by the fact that this reference teaches that this configuration is conventional for abrasive composites.

Claims 21 and 28 are rejected under 35 U.S.C. 103(a) as obvious over Pieper et al. (5,152,917) in view of Kaisaki et al. (6,194,317) or Adefris et al. (6,319,108), as applied to claims 19 and 26 above and further in view of Gagliardi et al. (235).

With respect to the limitations of claims 21 and 28, the configuration in this manner is obvious to the skilled artisan in order to improve the cut rate and thus grinding efficiency, as evidenced by Gagliardi et al. (235).

Claims 19-32 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over all the claims of copending Application No. 10/668,799 in view of Gagliardi et al. (235). The copending claims define an abrasive array (and abrasive article comprising the array), wherein the abrasive array has the same structure as the present claims (i.e. the composites defined have 4 sides and a linear region offset from the first and third sides).

With respect to the limitations of claims 21 and 28, the configuration in this manner is obvious to the skilled artisan in order to improve the cut rate and thus grinding efficiency, as evidenced by Gagliardi et al. (235).

With respect to the limitations of claims 24 and 31, Gagliardi et al. (235) clearly teach that the composites are separated (do not abut) and thus the configuration of the composites according to the primary reference in a non abutment array would have been obvious motivated

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by the fact that this reference teaches that this configuration is conventional for abrasive composites.

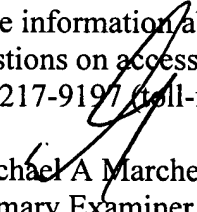
With respect to the use of a grinding aid (claims 25 and 32), the use of this additive is obvious in order to optimize the grinding performance of the composite and said additive is conventionally used in abrasive composites to provide the desired properties (column 9, lines 46+ of Gagliardi et al.).

Applicant's arguments with respect to all the claims have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Michael A. Marcheschi
Primary Examiner
Art Unit 1755

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MM